Efficiency & Renewables in the Electricity Sector

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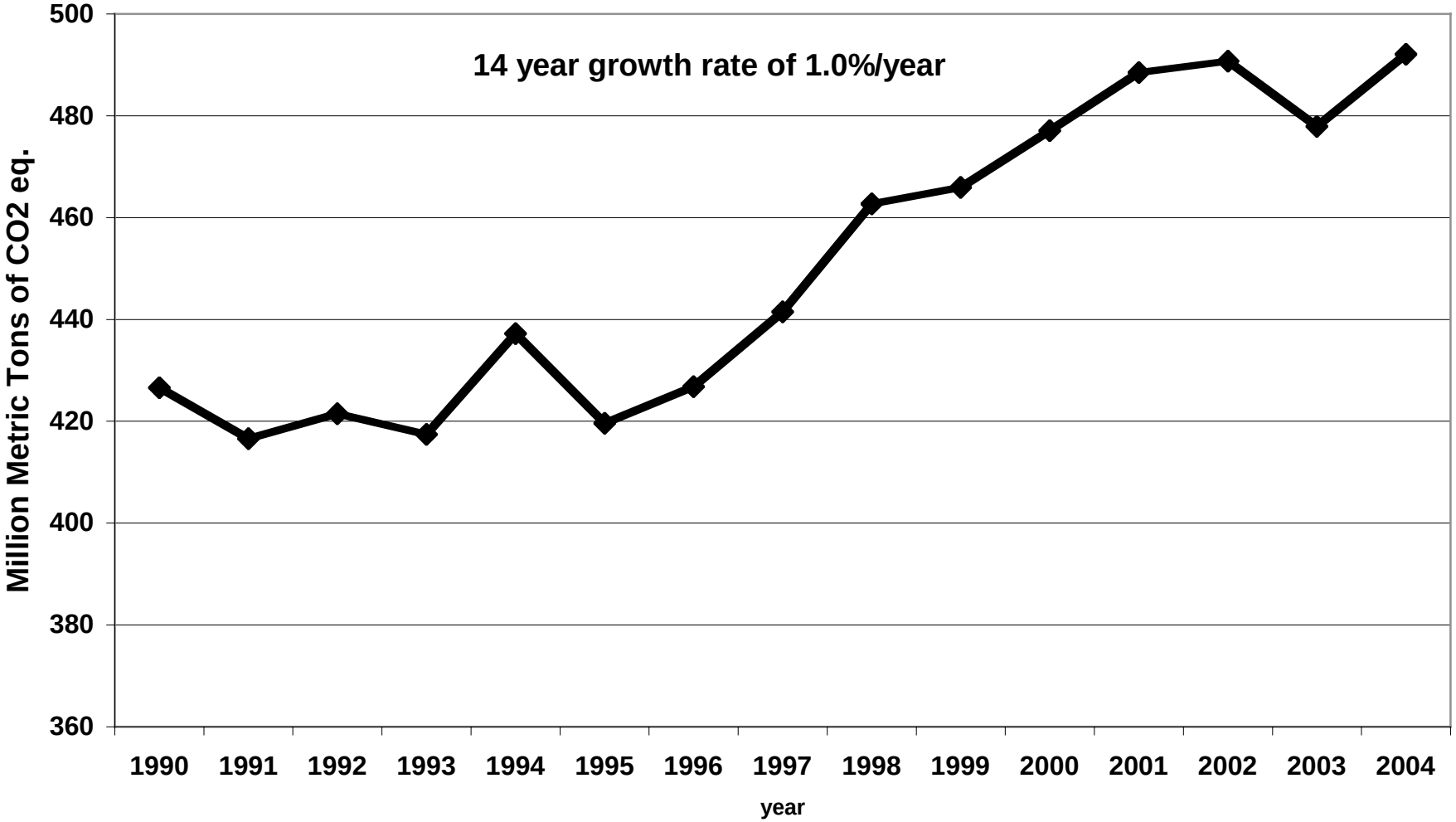
Arthur H. Rosenfeld, Commissioner
California Energy Commission
(916) 654-4930
ARosenfe@Energy.State.CA.US

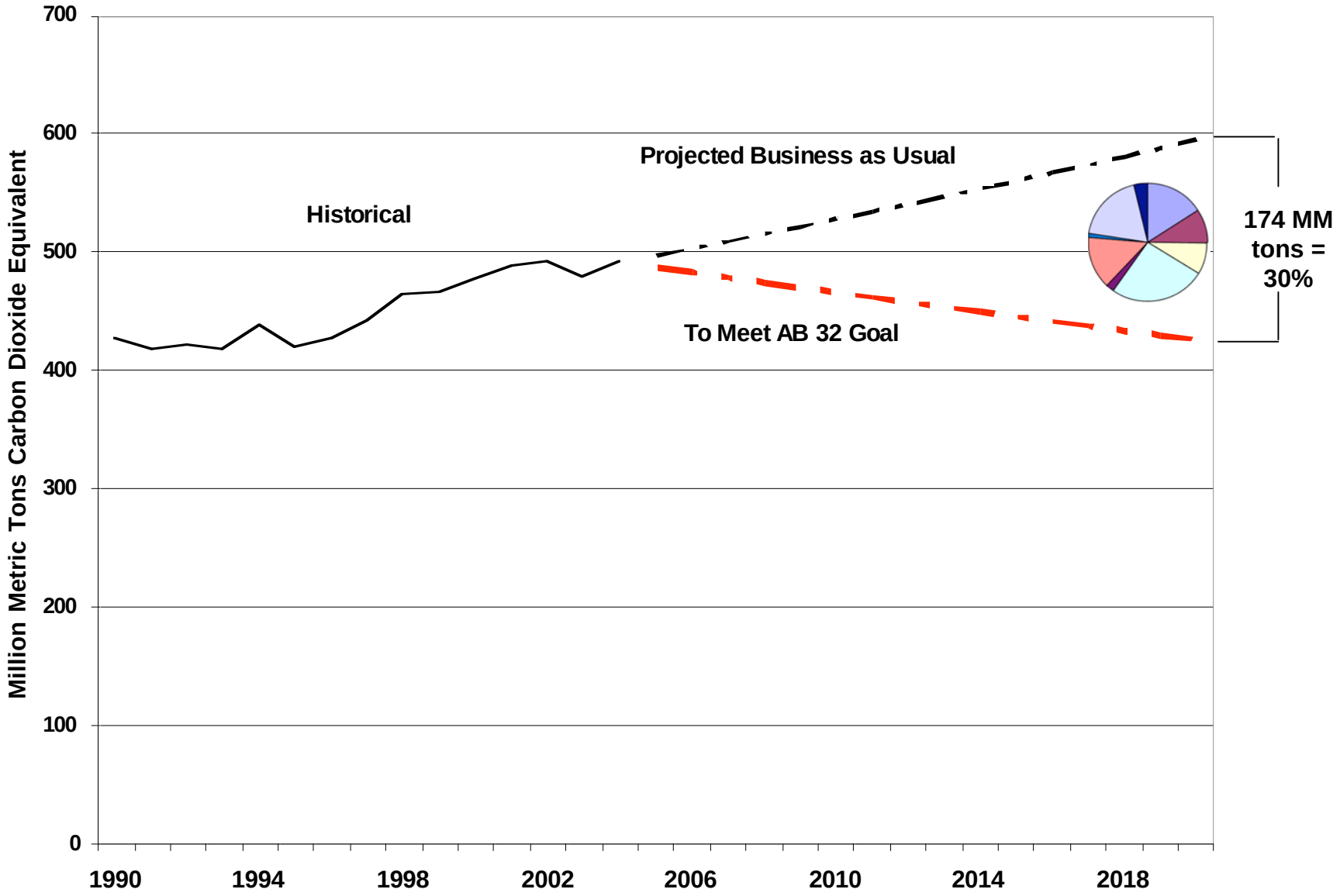
http://www.energy.ca.gov/commission/commissioners/rosenfeld.html

or just Google "Art Rosenfeld"

CO2 Emissions in California Including Electricity Imports
1990 - 2004

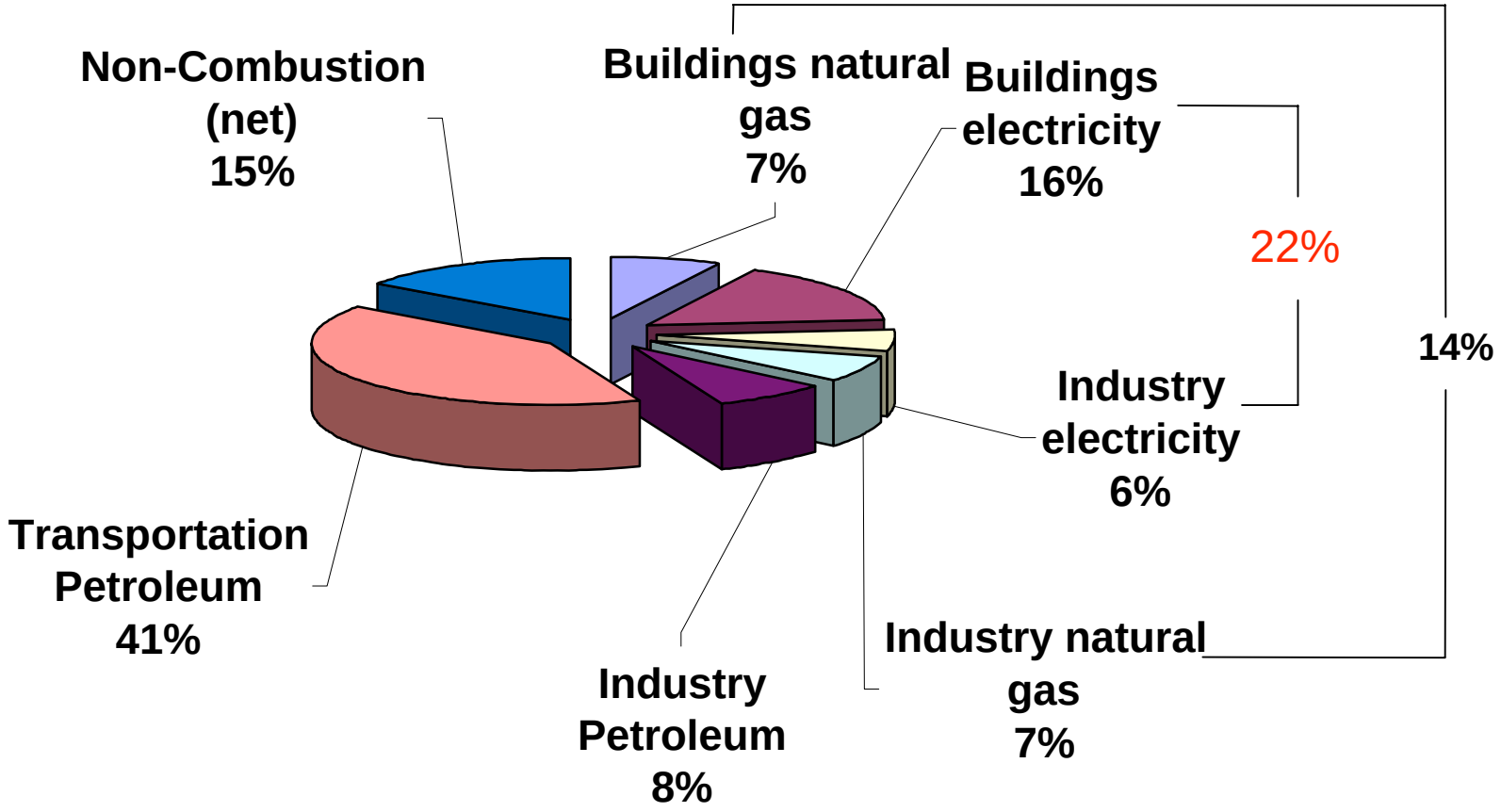


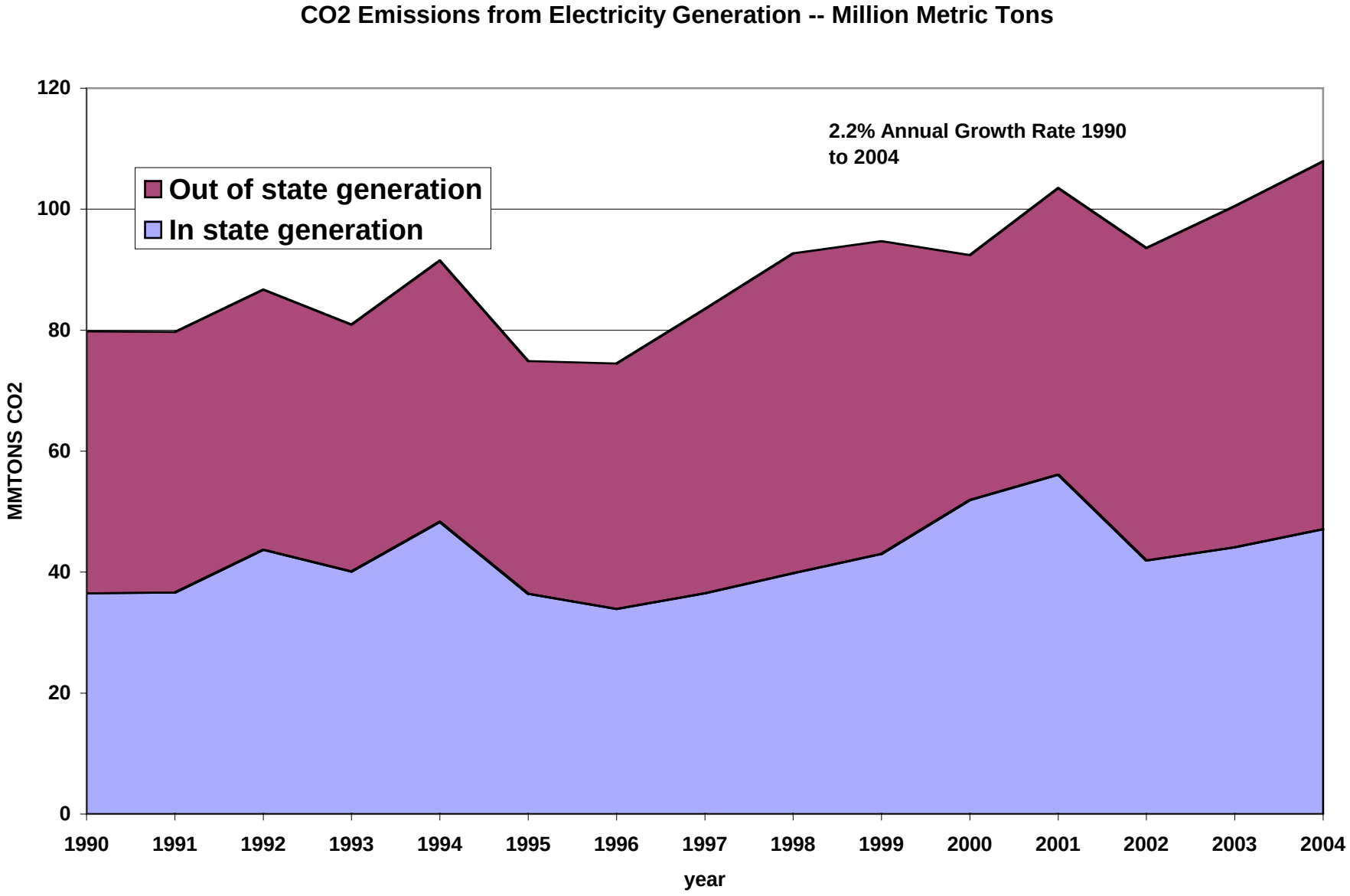
CO2 Emissions in California: Historical and Projected



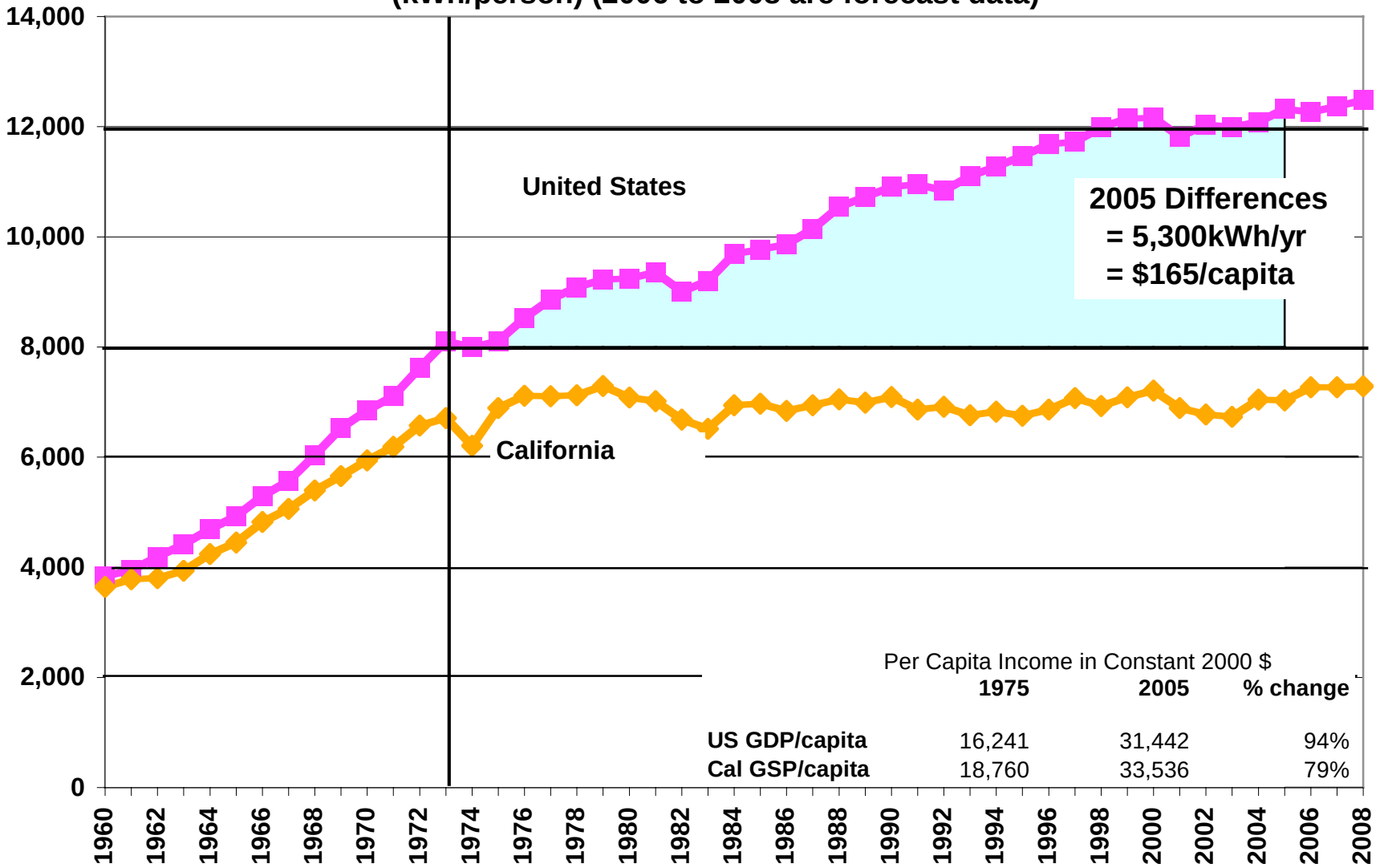
California's CO2 Emissions by End-Use Sectors 2004

Total Emissions = ~500 Million Metric Tons CO2 (eq.)




CO2 Emissions from Electricity Generation -- Million Metric Tons
2.2% Annual Growth Rate 1990 to 2004
Out of state generation
In state generation
MMTONS CO2
120
100
80
60
40
20
0
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
year

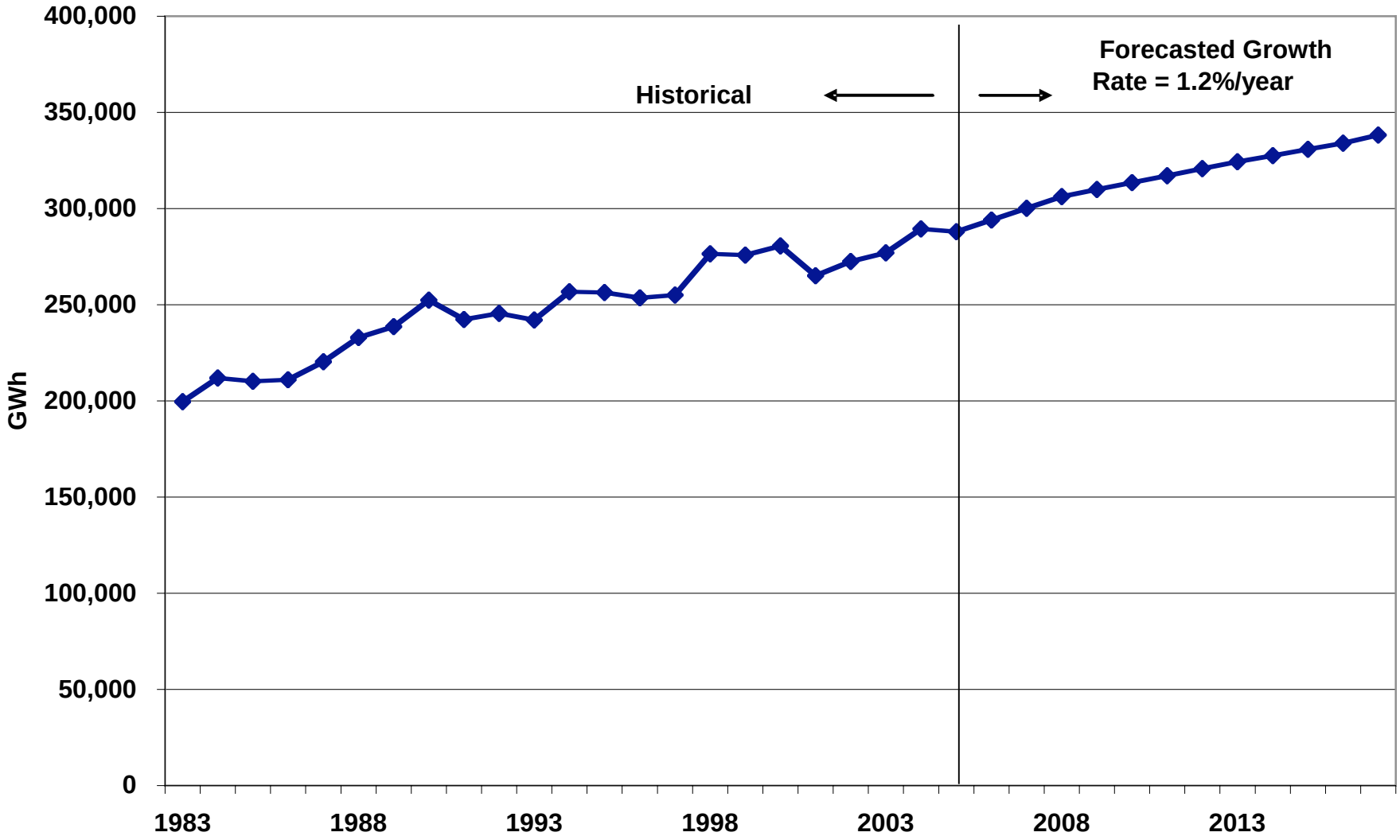
Per Capita Electricity Sales (not including self-generation) (kWh/person) (2006 to 2008 are forecast data)



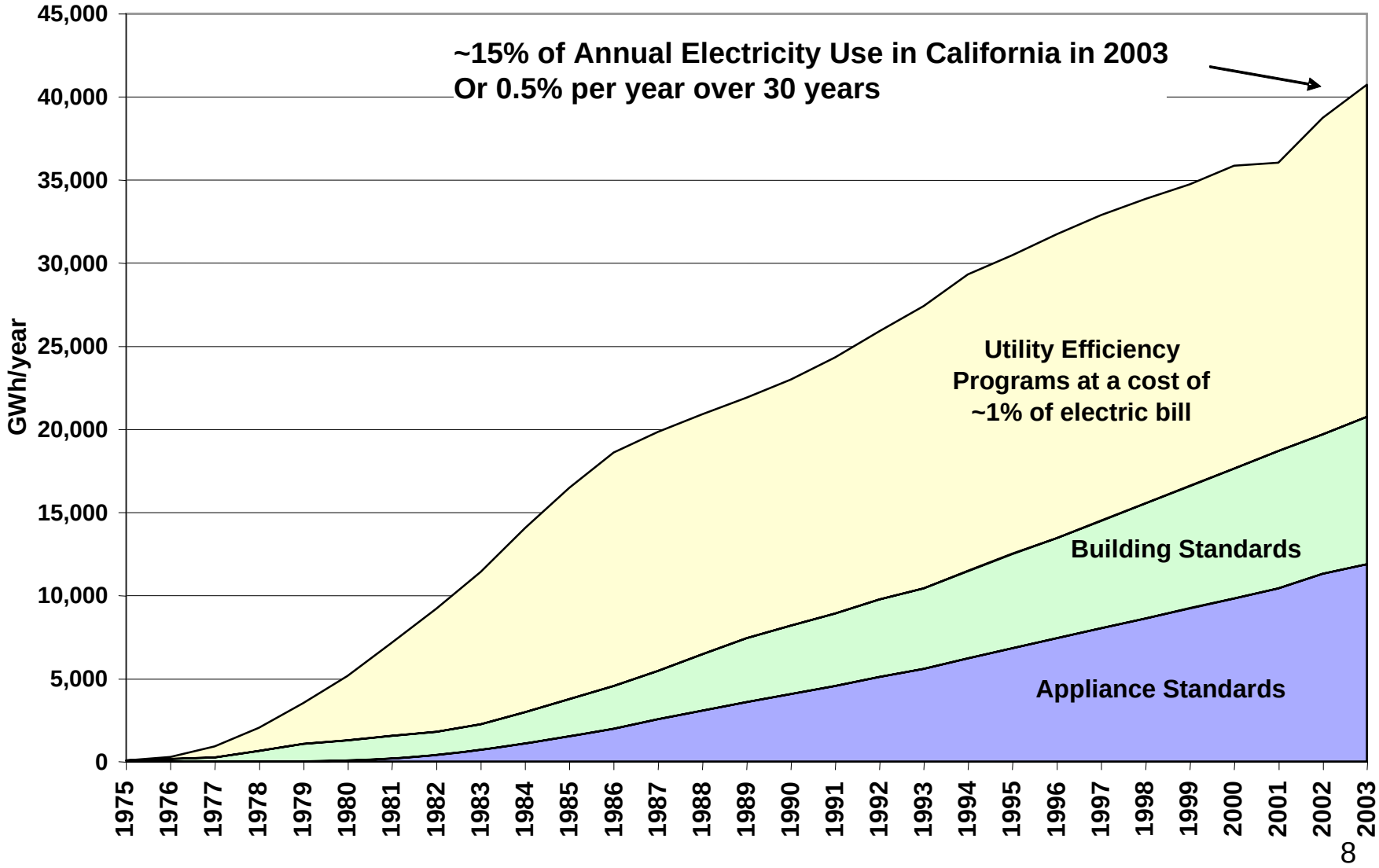
Per Capita Income in Constant 2000 $

	1975	2005	% change
US GDP/capita	16,241	31,442	94%
Cal GSP/capita	18,760	33,536	79%

Electricity Generation for California 1983-2017



Annual Energy Savings from Efficiency Programs and Standards



California IOU's Investment in Energy Efficiency

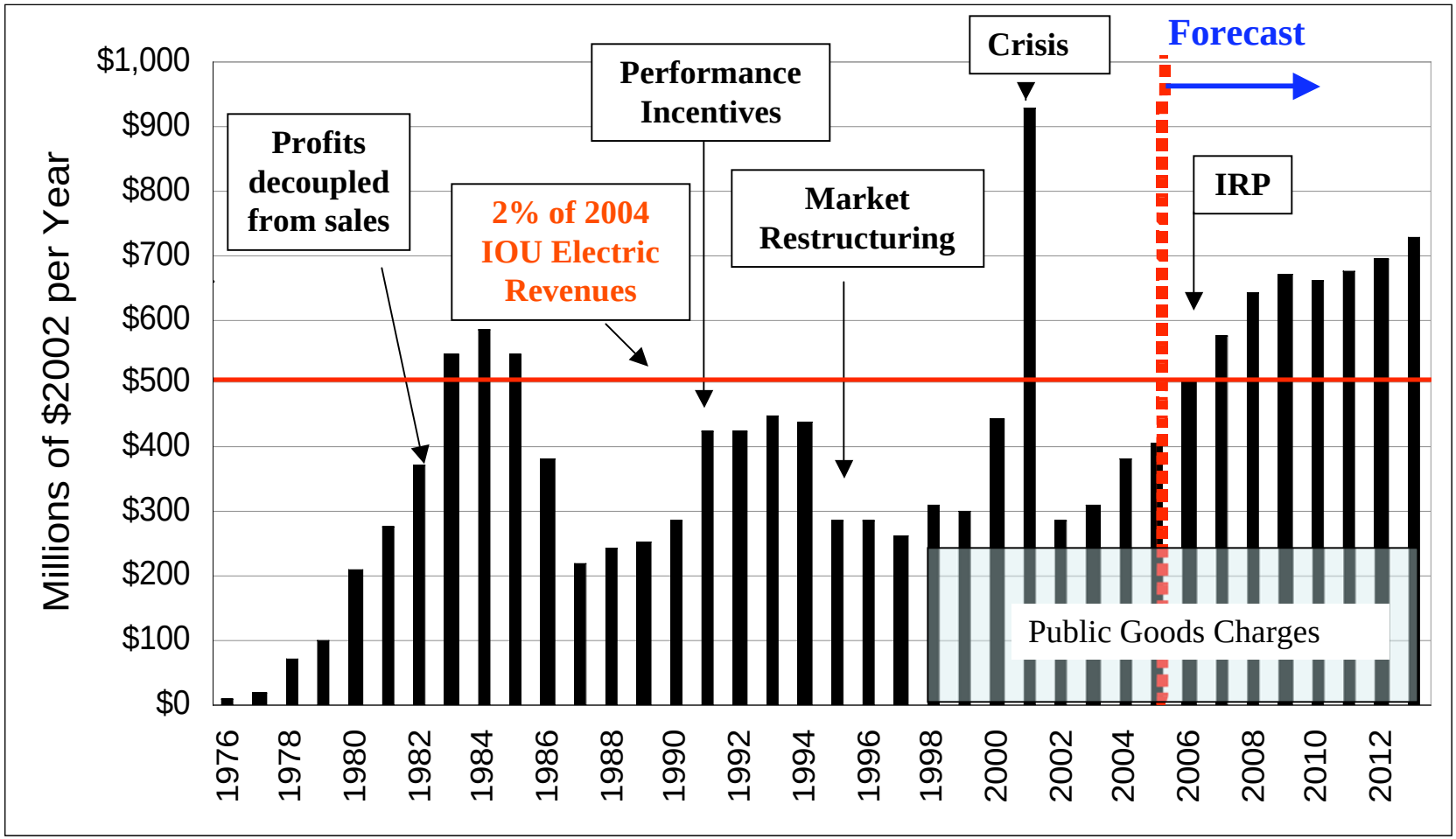
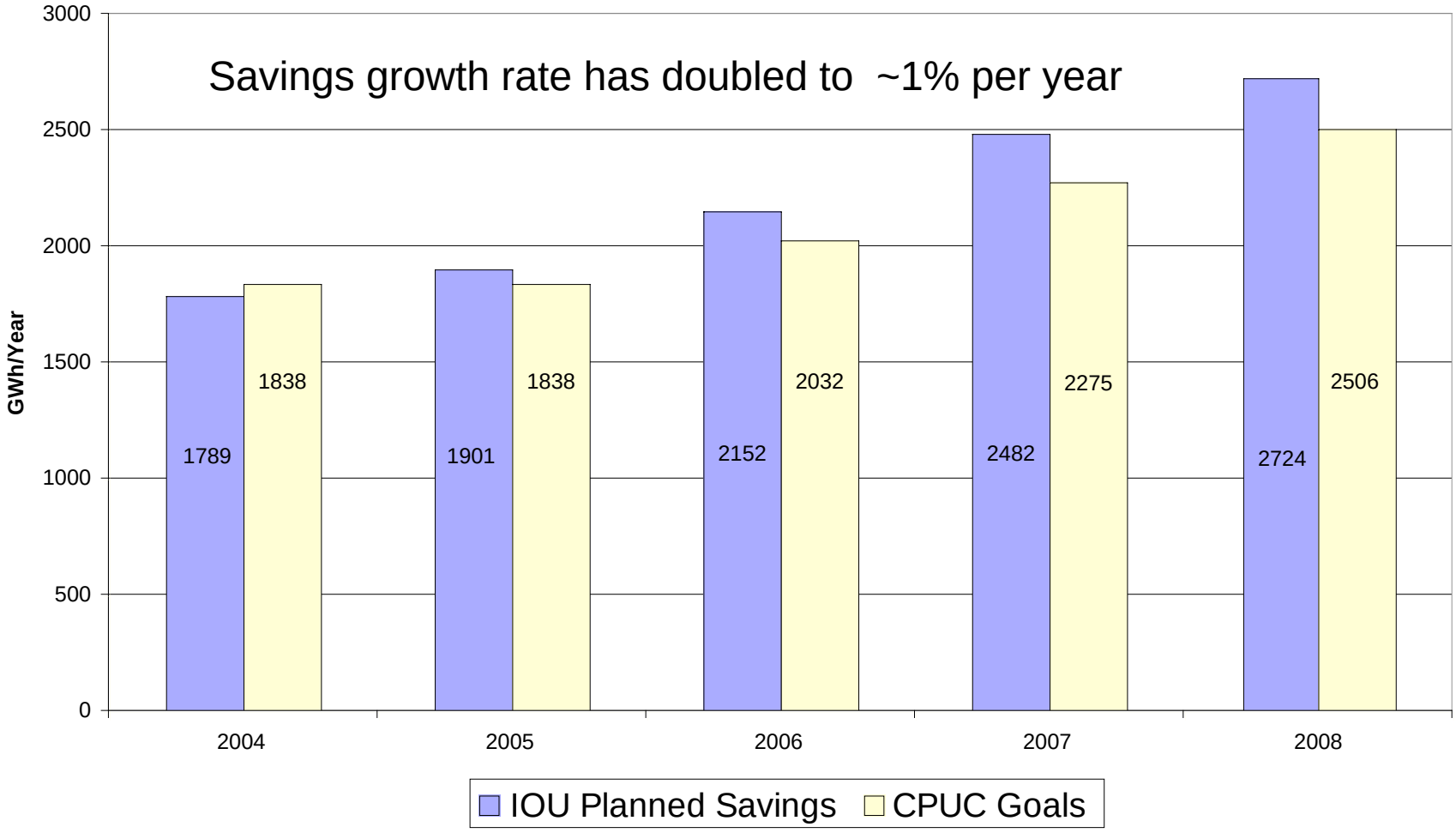
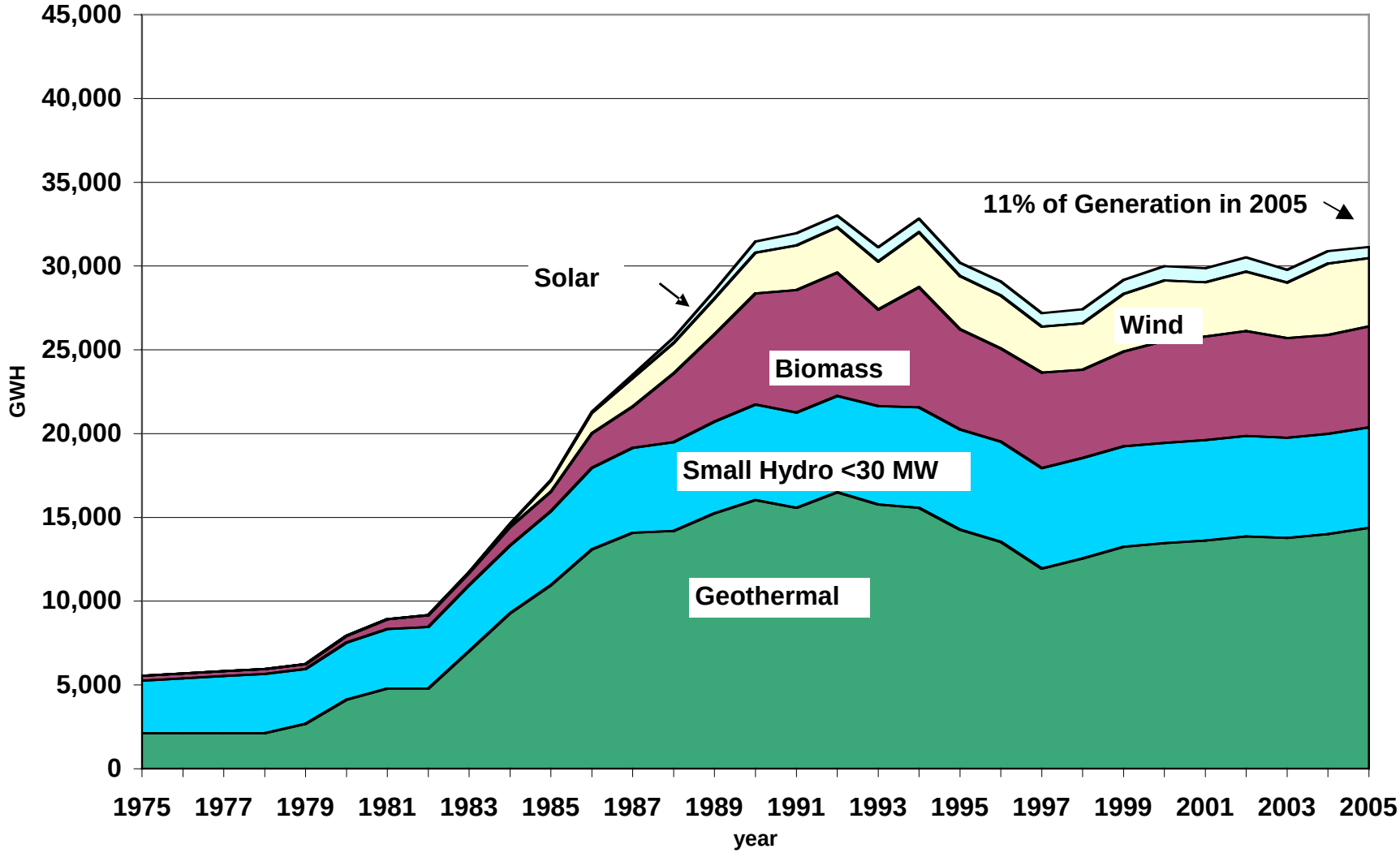


Figure 9
IOU Projected Electricity Savings Compared to Goals 2004-2008

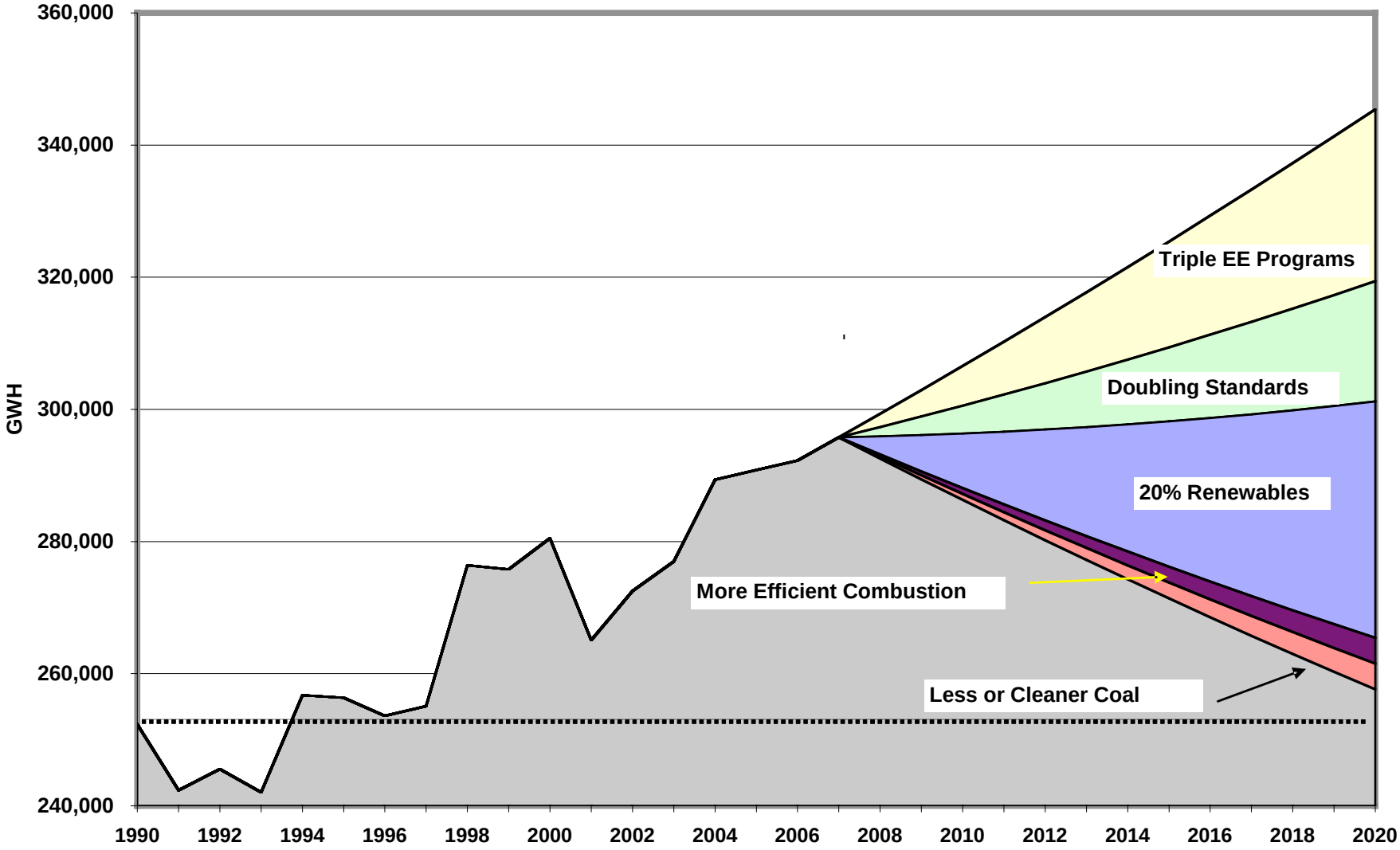


Source: Funding and Savings from IOU Efficiency Programs, Rogers, et. al.

Renewable Electricity Generation in California
(not including large hydroelectric, > 30 MW)

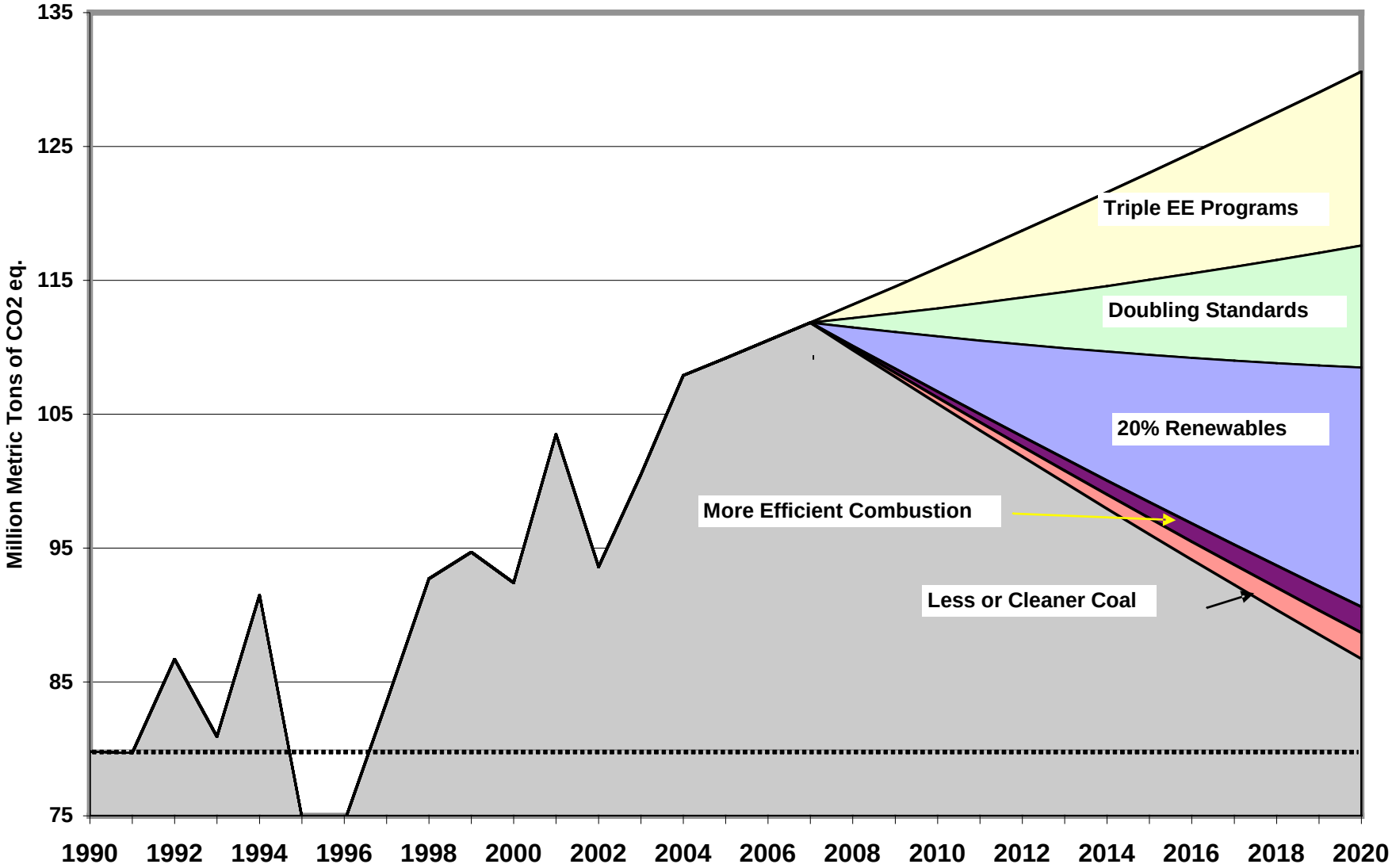


Possible Strategies to Reduce Electricity Sector Carbon Emissions in California, ignoring ramp up times and other implementation issues -- The ELECTRICITY Perspective



Source: Pat McAuliffe, pmcaulif@energy.state.ca.us

Possible Strategies to Reduce Electricity Sector Carbon Emissions in California, ignoring ramp up times and other implementation issues -- The CARBON Perspective



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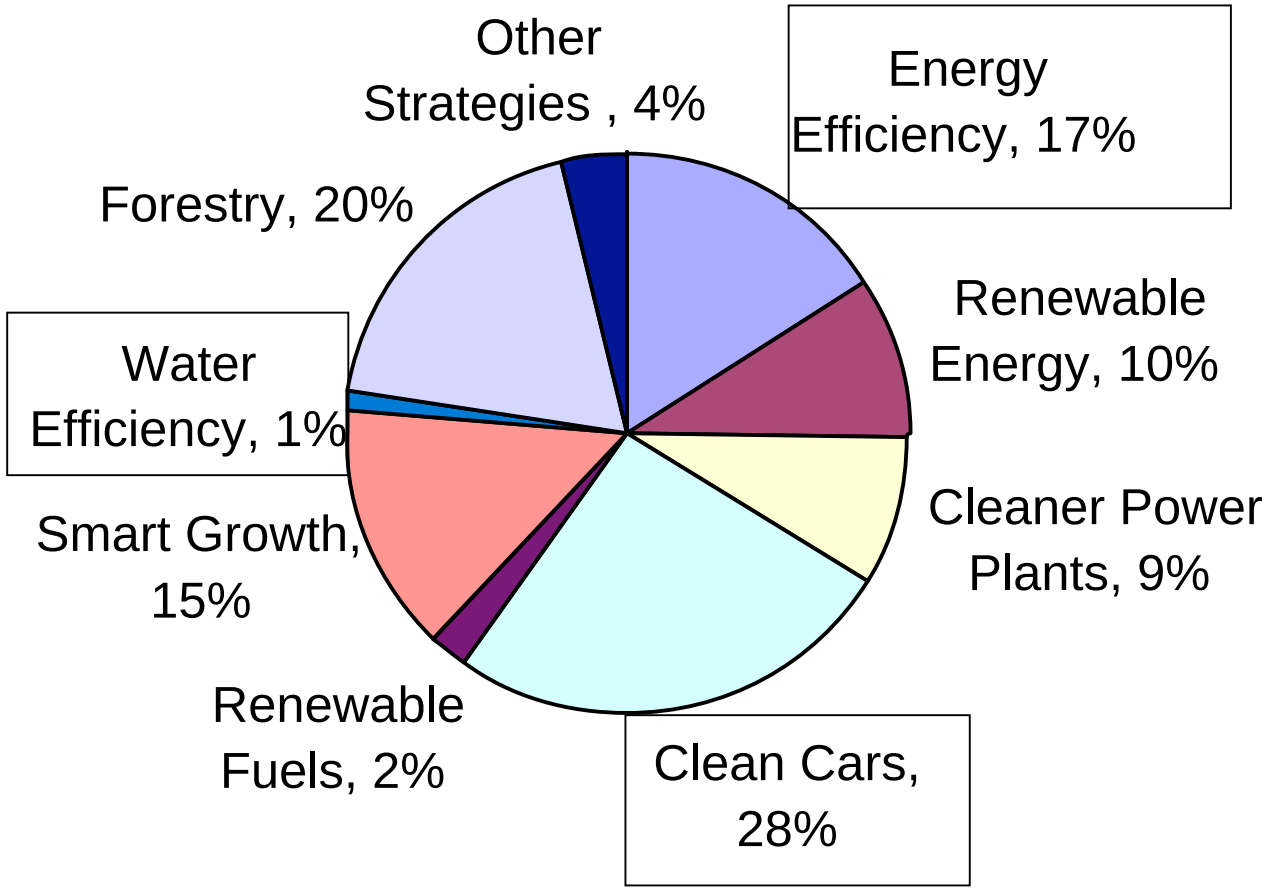
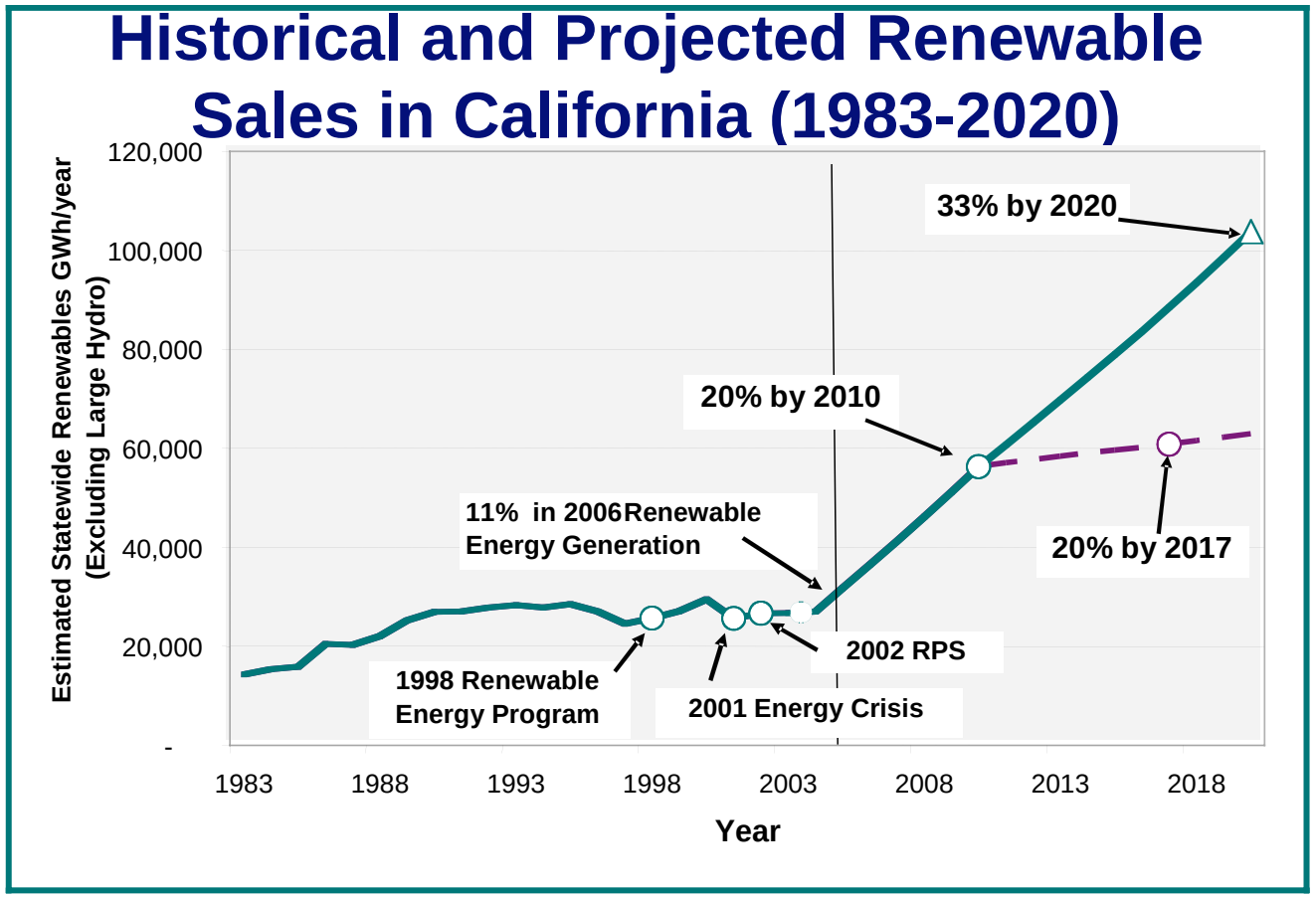
Strategies for Meeting California's CO2 Goals in 2020

Total Reductions = 174 Million metric Tons CO2 equivalent



California Renewables Portfolio Standard

- **Designed to increase diversity, reliability, public health and environmental benefits of California's energy mix.**
- **Current legislative goal of 20% of retail sales from renewables by 2010; increase by at least 1% per year.**
- **Some discussion of increasing the goal to 33% by 2020**



California Solar Initiative :“Zero energy” new homes

- $ 3 Billion Dollars over 10 years
  - Current rebate of $2.80 per watt but tied to improved home efficiency for new homes
  - Goal of 3,000 MW within 10 years, mostly residential locations
- A 2 kW Alternating Current PV system on a home with a 3 kW central air conditioning on an annual basis

  7,500 kWh (typical new home in California)

  -3,000 kWh (PV output)

  4,500 kWh remaining load

  -2,500 kWh reduction in load due to **extra energy efficiency**

  2,000 kWh (Net purchase of utility energy)

- www.GoSolarCalifornia.ca.gov